RETURN TO SERVICE PROCEDURE TABLE OF CONTENTS
RETURN TO CD-ROM TABLE OF CONTENTS

Dräger medical
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Field Service Procedure

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Narkomed 6000 Series IPMM and SCR Installation

RETURN TO SERVICE PROCEDURE TABLE OF CONTENTS
RETURN TO CD-ROM TABLE OF CONTENTS

Narkomed 6000 Series IPMM and SCR Installation

INSTALLATION PROCEDURE

The purpose of this Service Procedure is to provide detailed instructions to perform the installation of a Integrated Patient Monitor (IPMM) and Strip Chart Recorder (SCR) into an existing Narkomed 6000 Series Anesthesia Machine.

If the Narkomed 6000 Series Anesthesia Machine has a CRT display, install the flat-panel upgrade kit, P/N 4116085. The referenced kit contains the parts and instructions needed to convert from a CRT to a flat-panel display.

CAUTION: The IPM and SCR assemblies shall only be used with a Narkomed 6000 Series Anesthesia Machine configured with a Flat Panel Monitor.

NOTE: When converting to a flat-panel display, do not install the display controller onto the table lamp assembly nor reinstall the table lamp panel. The SCR assembly will be installed in its place.

If the Narkomed 6000 Series Anesthesia Machine user application software version is 2.xx, install 3.01 software upgrade kit, PN 4117630-003. The referenced kit contains the necessary 3.01 software, 64k RAM and additional parts and instructions needed to convert to 3.01 software.

NOTE: The base 3.01 Kit (without Templates & Sounds or Air Only keyloks) is available to all IPM users. Refer to TSB #6013 when order is being placed.

If the user application is 4.xx, a RAM upgrade to 128k is included in the applicable IPM and SCR upgrade kits.

CAUTION: The IPMM and SCR installation requires a WPU with a 233 Mhz or greater processor and either 3.xx user application software and 64k RAM, or 4.xx user application software and 128k RAM. Improper configurations may result in a variety of system malfunctions.

CAUTION: There are two kit part numbers associated with this installation. Each kit number contains different kit items, depending on the configuration of the existing Narkomed 6000 Series machine which is being converted. To ensure proper operation the correct kit must be installed. Refer to steps 1.1 thorough 1.6 to determine the current machine configuration. The possible machine configurations and their associated kit part numbers are as follows:

Table 1: Current Narkomed 6000 Series Configuration

Current Narkomed 6000 Series Configuration	Use Kit Number
700 Mhz WPU - 3.xx Software - 64MB RAM	4116705-001
700 Mhz WPU - 4.xx Software - 128MB RAM	4116705-001
233 Mhz WPU - 3.xx Software - 64MB RAM	4116705-001
233 Mhz WPU - 4.xx Software - 64MB RAM	4116705

1. Determine the proper kit to be installed by performing the following verifications:

1.1 If applicable, set System Power switch to ON and press the 'Divan Standby' key to abort the ventilator test.

1.2 Set System Power switch to STANDBY and wait for the Divan display to go blank (approximately 10 seconds), then set system to ON.

1.3 The WPU will automatically save data, shut down, then restart. When the WPU restarts, watch for a dark blue Windows NT Service Pack 5 screen and note the amount of RAM listed in brackets on the last line of text. i.e; [64 MB].

1.4 Press the 'Divan Standby' key to abort the ventilator test then press the 'Continue' key at the 'SYSTEM CONDITIONALLY FUNCTIONAL' dialog to complete the system diagnostics.

1.5 Press the 'To Primary Keys' button then press the 'Setup Notebook' button. Select the 'About' tab to call up the About System Software dialog box and note the version listed to the right of the NM6000 or NM6400 key.

1.6 Utilizing the information determined in steps 1.3 and 1.5 refer to Table 1: listed above to obtain the appropriate kit to be installed.

2. General Machine Preparation

2.1 Turn the System Power switch to STANDBY.

2.2 Remove AC power from the machine and wait approximately 3 minutes for system shut down, as indicated by an extinguished green LED on the Vitalbus HUB, then pull all circuit breakers to their 'out' position.

WARNING: Before servicing, ensure that AC power is removed from the machine and all circuit breakers are disengaged (pulled out). Failure to observe this precaution may cause injury by electrical shock.

CAUTION: Use ESD precautions when handling any of the electronics assemblies. These components contain static sensitive components.

2.3 Close all reserve cylinder valves then remove them from the yokes.

2.4 Disconnect all external cables from the communication hub, and swing open the communication hub door.

2.5 Remove all of the rear covers from the machine, including the vaporizer parking panel and the divan connector cover plate.

2.6 If the WPU cover identifies the WPU as a 700 Mhz Processor or if the label identifies RAM as 128MB, skip to the note statement prior to step 4.1.

3. 233 Mhz PROCESSOR RAM Upgrade, If applicable

3.1 Disconnect all of the cables at the top rear of the power supply box, and move them out of the way.

3.2 Remove the WPU cover.

3.3 Locate the RAM modules. See Figure 1.

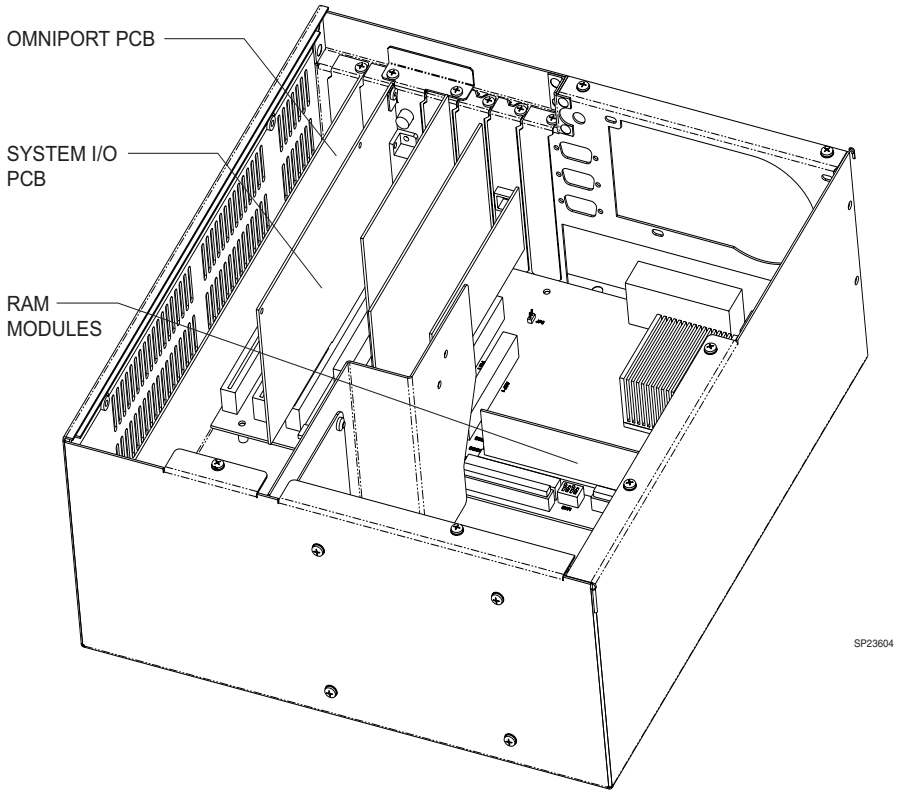

Figure 1. RAM Module Location 233 Mhz Processor

INSTALLATION PROCEDURE (continued)

3.4 Un-clip the RAM module motherboard retaining clips. Remove and discard all RAM PCB's.

3.5 Install the RAM modules provided in the kit. The round section of the clip shall be snapped into place on the component (right) side of the RAM module to make proper connection. Verify all RAM modules are perpendicular to the motherboard and the retaining clips at each end of the modules are properly secure. The arrow in Figure 2. shows an example of an un-clipped memory module.

3.6 Reinstall the WPU cover.

3.7 Apply a 128MEG label over the RAM section of the WPU cover label.

3.8 Reconnect and secure the cables previously removed from the power supply assembly.

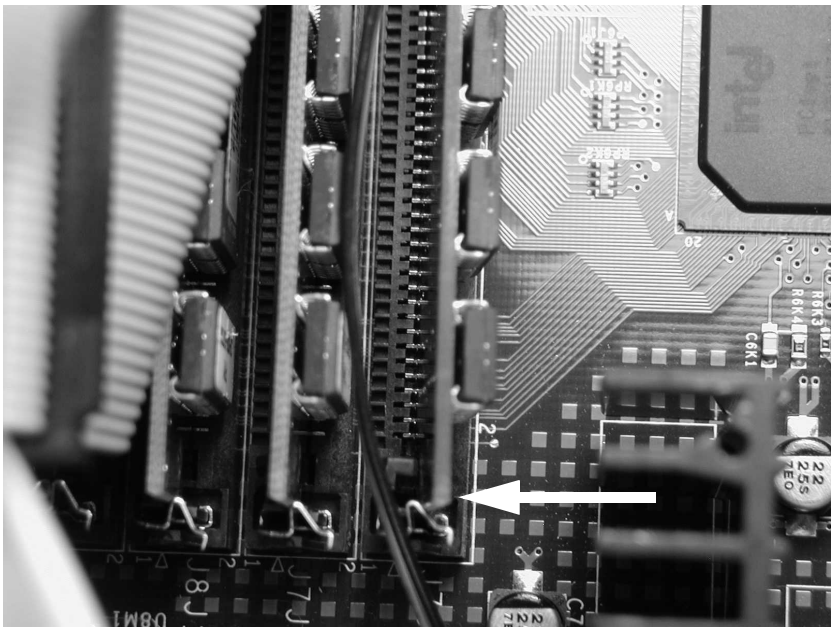

Figure 2. Example of Improperly Clipped RAM

4. SCR Installation:

NOTE: Skip the next step if you have just converted from a CRT to a flat-panel display. This step was performed in the previous conversion procedure.

4.1 Remove the panel retainer screws and pull the lamp assembly forward far enough to gain access to the in-line power connector.

4.2 If applicable, remove the display control PCB from the back of the lamp panel.

4.3 If applicable, carefully separate the in-line connector on the wire harness, and remove the lamp panel assembly.

4.4 Position the SCR assembly on the table.

4.5 Install the display control PCB with the data cable routed out from the top of the SCR assembly, and the cable trace connected to Pin 1 (see Figure 3.). The PCB mounts on the SCR by a snap-in arrangement.

4.6 Install the stick-on cable clamp (provided in the kit) on the back of the SCR as shown in the detail in the illustration.

4.7 Connect the 10 ft. Vitalbus cable (provided in the kit) to the SCR and tighten the thumb screw, then route this cable through the cable clip as shown in the illustration.

4.8 Join the in-line power connector to the wire harness on the machine.

4.9 Install the SCR assembly using the trim piece and hardware that was previously removed.

4.10 Route the Vitalbus cable down the left side (facing the rear) of the machine in the same manner as the display cables. See Figure 4.

4.11 Continue routing the cable across the bottom of the chassis, through the rectangular access hole at the bottom of the right (facing the back of the machine) side panel, up through the inside channel to the access hole in the vaporizer parking area; then route the cable down through the outside shell of the machine and out through the grommeted round hole at the bottom.

4.12 Attach the Vitalbus cable to any unoccupied Vitalbus port and tighten the thumb screw retainers.

4.13 Ensure that the SCR is loaded with a paper roll, and place the spare roll (provided in the kit) in the machine drawer.

INSTALLATION PROCEDURE (continued)

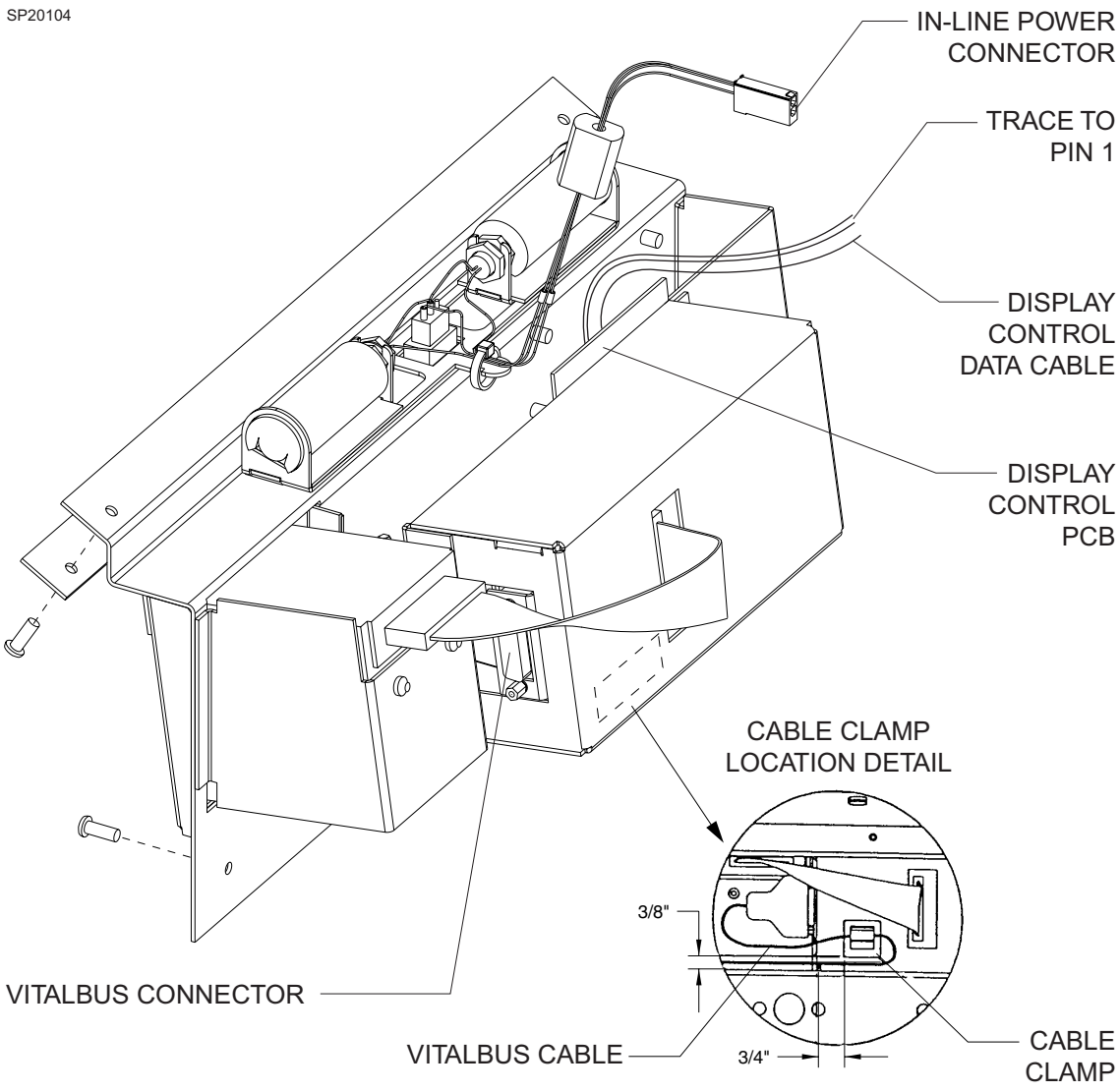

Figure 3. SCR Installation

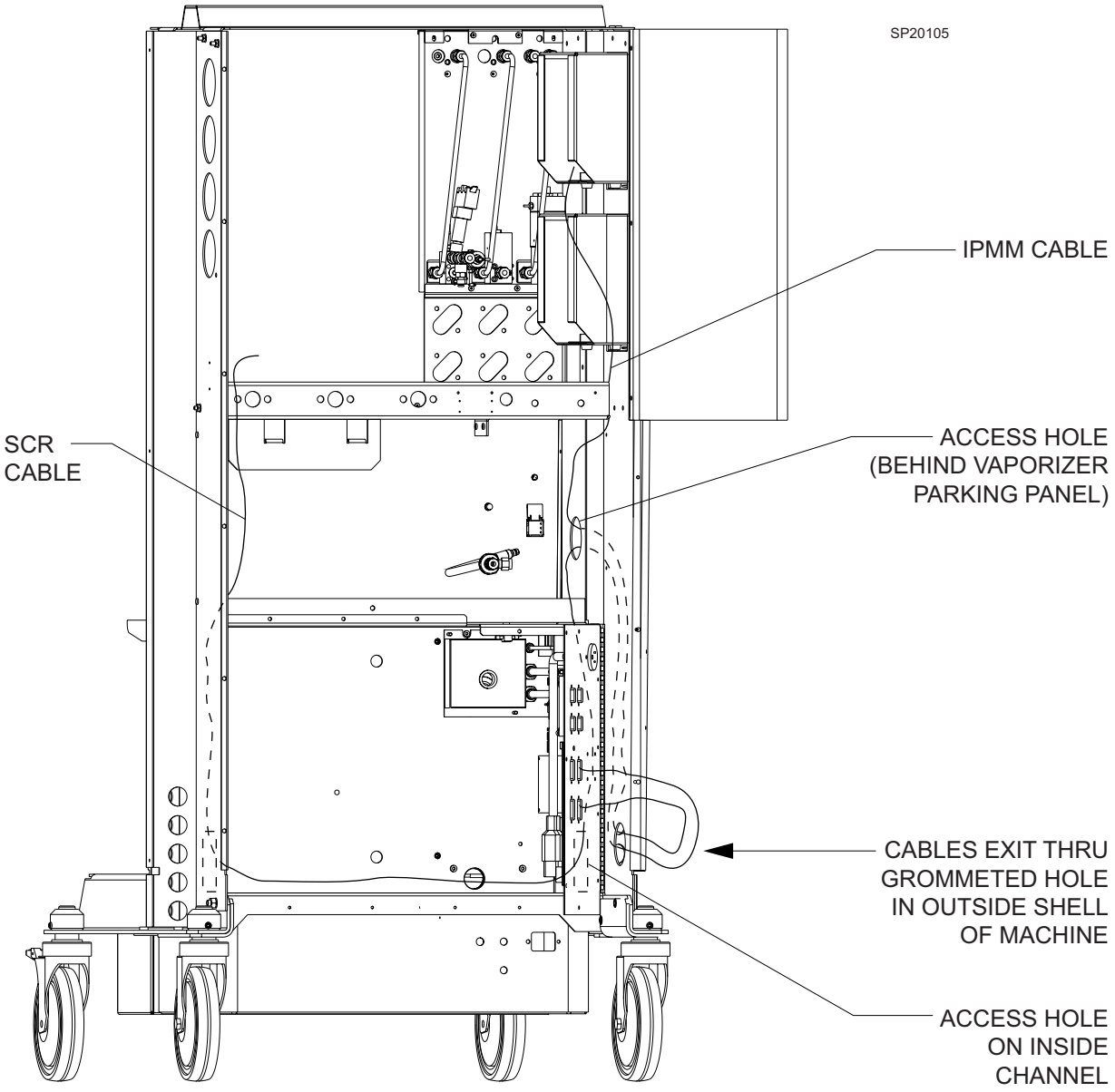

Figure 4. Cable Routing

5. IPMM Installation:

5.1 Remove the blank panel from the upper pod opening on the left side of the machine.

5.2 Slide the IPMM into the opening (see Figure 5.). Tighten the thumb screw on the front of the module to lock it in place.

5.3 Connect a 5 ft. Vitalbus cable to the module and tighten the thumbscrew retainers.

5.4 Route this cable down through the inside channel to the access hole in the vaporizer parking area (see Figure 4.); then route the cable down through the outside shell of the machine and out through the grommeted round hole at the bottom.

5.5 Attach the Vitalbus cable to any unoccupied Vitalbus port and tighten the thumbscrew retainers.

5.6 Place the IPMM Startup Accessories (provided in the kit) into their corresponding IPMM connectors. Place any remaining accessories in the machine drawer.

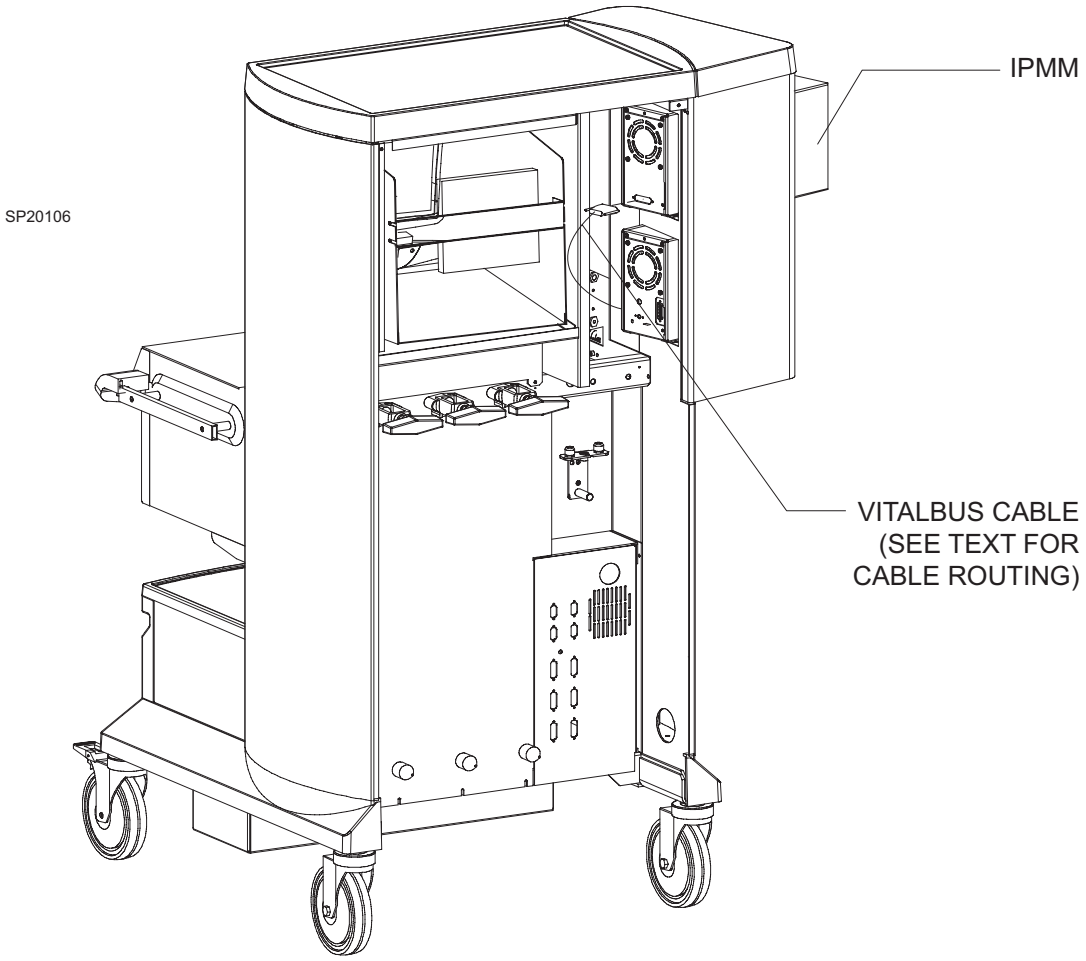

Figure 5. IPMM Installation

6. Documentation:

6.1 Locate the Operator's Manual binder accompanying the machine, and do the following:

- After the instruction manual, add the IPMM divider P/N 4116675.
- After the divider, add the IPMM Option Instruction Manual: P/N 4116574-003 if software is version 3.xx, or P/N 4117966-002 if software is version 4.xx.

6.2 Reinstall all of the rear panels that were removed from the machine and secure the Vitalbus Hub door.

6.3 Attach the new Vitalbus cables into any open Vitalbus ports on the communication hub door and tighten their thumb screw retainers.

7. Power Cord Replacement, If applicable:

7.1 If the power cord is configured with Ferrite blocks, skip the next two steps. See Figure 6.

7.2 Loosen the power cord retaining screw and remove the existing AC power cord from the machine.

7.3 Install the new power cord assembly, P/N 4116361 and verify that it is fully seated into the power supply socket, then tighten the power cord retainer screw.

7.4 Route the power cord's strain relief with a loop in a clockwise direction. The retaining clip shall be located 16.5 ±0.25 inches (5.25 inch diameter loop approx.) from the cord end and secured to the Vitalbus HUB door using the mounting hole directly above the power cord socket as shown in Figure 6.

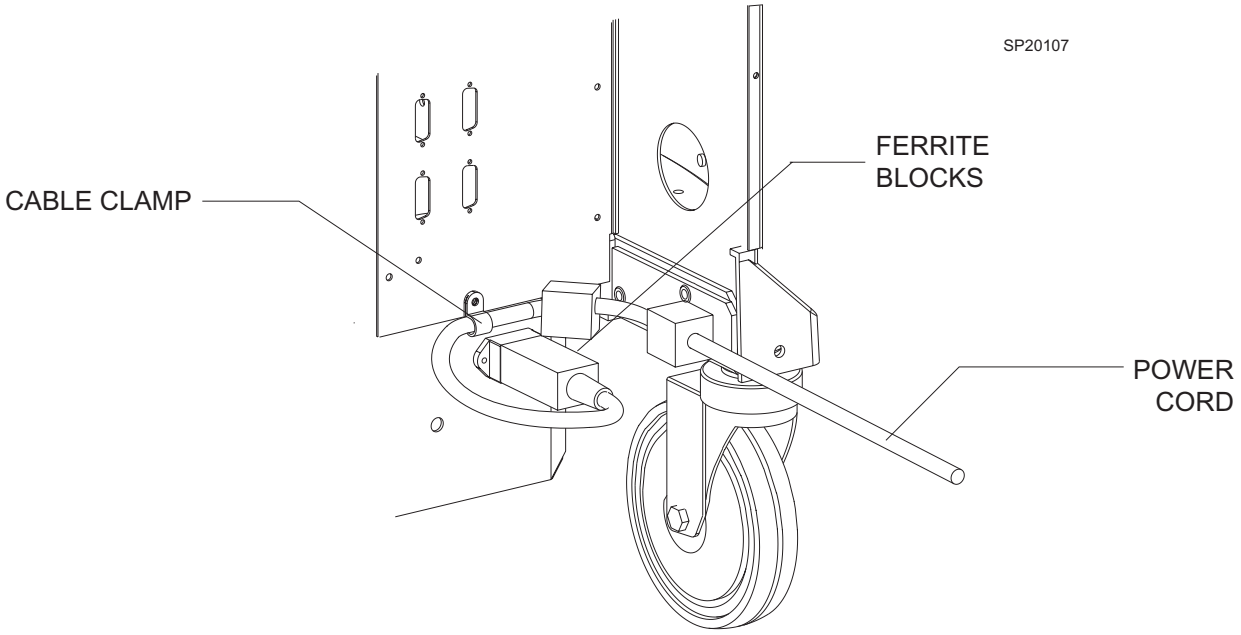

Figure 6. Power Cord Identification and Routing

8. Machine Reassembly

8.1 Reinstall the cylinders in their yokes.

8.2 Reconnect AC power to the machine and enable the circuit breakers.

8.3 Turn the System Power switch to ON, and follow the Divan prompts. Verify the Narkomed 6000 Series Anesthesia Machine successfully completes the power-up system diagnostic and ventilator tests.

8.4 Perform a complete PMC on the IPM and SCR. Refer to section 6A the Narkomed 6000 Series Technical Service manual.

RETURN TO SERVICE PROCEDURE TABLE OF CONTENTS
RETURN TO CD-ROM TABLE OF CONTENTS

RETURN TO SERVICE PROCEDURE TABLE OF CONTENTS
RETURN TO CD-ROM TABLE OF CONTENTS

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